



LUCAS HEIGHTS EMERGENCY SUBPLAN

**A SUBPLAN OF THE
NSW STATE EMERGENCY MANAGEMENT PLAN**

June 2019

AUTHORISATION

The Lucas Heights Subplan has been prepared as a subplan to the New South Wales State Emergency Management Plan (EMPLAN) to detail the control and coordination arrangements for aspects of the preparation for, response to, and immediate recovery from an emergency occurring at Lucas Heights.

This plan has been prepared on behalf of the State Emergency Operations Controller was endorsed by the State Emergency Management Committee out of session in June 2019.

AMENDMENTS

Proposals for amendment or addition to the contents of the NSW State Lucas Heights Subplan are to be forwarded to:

New South Wales Police Force
Emergency Management Unit
Sydney Police Centre
151-241 Goulburn Street
Surry Hills NSW 2010

VERSION HISTORY

Version updates are recorded in the following table.

Version History	
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Rewritten	November 2005
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DISTRIBUTION

This subplan may be distributed in electronic format and is available on the Emergency NSW website at www.emergency.nsw.gov.au.

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1. BACKGROUND

This document is a Sub Plan to the NSW EMPLAN and is a consolidation of various preceding documents including the Lucas Heights Emergency Sub Plan (2005), the Georges River Emergency Evacuation Sub Plan (2005) and the ANSTO Research Reactor Lucas Heights Strategy for off-site Iodine Distribution (2003).

This document recognises changes in the facilities at the Lucas Heights Science and Technology Centre as well as a revised hazard and threat environment. It also revises changes in emergency arrangements and international standards since the above documents were introduced.

This document was written by a Sub Committee authorised by the SEMC and Sydney Metropolitan REMC in a cooperative arrangement involving Sutherland Shire Council (Chair and Secretariat), Sutherland Shire LEOCON, NSW Police Force (Sutherland Shire PAC, Sydney Metropolitan REMO, Emergency Management Unit and Police Media), Fire and Rescue NSW (Zone Commander and State HAZMAT/CBRN Sub Group member), Rural Fire Service, ANSTO, ARPANSA, NSW Health (Local Emergency, Health Emergency Management Unit and Environmental Health Branch), NSW Ambulance, Engineering (SEMC representation), Environment Protection Authority, State Emergency Service, Emergency Information Coordination Unit, Department of Primary Industry and Department of Education.

2. INTRODUCTION

This plan details the 'off site' arrangements for prevention, preparation, response and recovery to a nuclear or radiological emergency at the Australian Nuclear and Science Technology Organisation (ANSTO), Lucas Heights. This plan is intended to integrate with the ANSTO Emergency Site Emergency Plan which details the responses to an emergency for both on and off-site consequences.

Fire and Rescue NSW is the designated combat agency for 'HAZMAT and CBRN incidents' in accordance with the State Emergency Management Plan (EMPLAN), although an emergency involving ANSTO facility at Lucas Heights will most likely require a multi-agency coordinated response involving the application of Local, Regional, State and Commonwealth resources.

This Sub Plan outlines the intended processes for managing such a response.

3. AIM

This Sub Plan describes the arrangements for the control and coordination of, the preparation for, response to and recovery from a nuclear or radiological emergency involving the ANSTO facility at Lucas Heights, with the intention of protecting human life, health and the environment.

4. OBJECTIVES

Consistent with the State Emergency and Rescue Management Act 1989 (SERM Act) and the NSW EMPLAN the objectives of this plan in relation to an emergency at Lucas Heights are to provide clarity as to:

- command and control,

- coordination of functions
- roles and responsibilities
- communications between agencies and liaison arrangements
- decision making
- response and health strategies
- public information and
- review, testing, evaluation and maintenance of this plan.

Specifically, the objectives of emergency response in a nuclear or radiological emergency is to:

- regain control of the situation and mitigate consequences
- protect life, provide medical treatment and manage the effects of radiation injuries
- keep the public informed and maintain public trust
- mitigate non-radiological consequences
- protect property and the environment
- prepare, to the extent practicable, for the resumption of normal social and economic activity.

5. SCOPE

This Sub Plan operates within the context of, and should be read in conjunction with the

- NSW State Emergency Management Plan (EMPLAN) and its subordinate arrangements
- NSW State Recovery Plan
- NSW Hazardous Materials/CBRN Management Sub Plan
- Environmental Services Functional Area Supporting Plan
- Sydney Metropolitan Emergency Management Region EMPLAN
- Sutherland Shire EMPLAN and Consequence Management Guides
- International Atomic Energy Agency General Safety Requirements
- ANSTO EMPLAN and Lucas Heights Facility Emergency Plans
- ANSTO Hazard Assessment and Radiation Protection Strategy
- ARPANSA Guidelines for Radiation Emergencies
- New South Wales Health Services Functional Area Supporting Plan (NSW HEALTHPLAN)
- ARPANSA Guide for Radiation Protection in Emergency Exposure Situations
- Australian Government Disaster Response Plan (COMDISPLAN)

Whilst applying the NSW EMPLAN ‘Principles of Emergency Management’ in this Sub Plan, additional considerations and arrangements are identified in the unique context of the ANSTO Lucas Heights facility and the potential for a nuclear or radiological emergency.

This Sub Plan details the coordination arrangements that will apply to Lucas Heights geographic area only, assuming an Emergency Preparedness Category II under the IAEA Safety Standards. It does not address nuclear or radiological emergencies that occur in other scenarios, as these are managed with the NSW HAZMAT/CBRN Management Sub Plan.

This plan is only activated for an emergency at ANSTO that is nuclear or radiological related. Normal emergency response arrangements are applicable in all other cases.

6. LEGAL FRAMEWORK

Australian Nuclear Science and Technology Organisation Act 1987

Australian Radiation Protection and Nuclear Safety Act 1998

Australian Radiation Protection and Nuclear Safety Regulations 1999

Dangerous Goods (Road and Rail Transport) Act 2008
Environmental Planning and Assessment Act 1979
Environmental Planning and Assessment Amendment Act 2008
Environmental Planning and Assessment Amendment (Part 3A Repeal) Act 2011
Environmental Trust Act 1998
Environmentally Hazardous Chemicals Act 1985
Fire Brigades Act 1989
State Emergency and Rescue Management Act 1989
Terrorism (Police Powers) Act 2002
Public Health Act 2010
Agricultural and Veterinary Chemicals (New South Wales) Act 1994
Protection of the Environment Administration Act 1991
Work Health and Safety Act 2011
Local Government Act 1993
Local Government Amendment Act 2012
Marine Pollution Act 1987
Maritime Services Act 1935
Pesticides Act 1999
Ports and Maritime Administration Act 1995
Poisons and Therapeutic Goods Act 1966
Protection of the Environment Operations Act 1997
Radiation Control Act 1990
Radiation Control Amendment Act 2010

7. CONCEPT OF OPERATIONS

This Concept of Operations emphasises the response and recovery phases of an emergency, assuming that prevention and preparation phases have been effectively applied as far as possible.

The ideal response to emergency at the ANSTO facility will initiate an immediate response by facility staff with action to save and support life whilst minimising the effect of the situation, securing the site to minimise contamination and evacuating as required.

This response is intended to ensure that suitable actions are taken to reduce any adverse health effects, by preventing deterministic effects and minimising the stochastic risk to both members of the public and workers, in emergency exposure situations.

Facility staff will declare and classify the emergency, notify emergency services within the response time objectives, activate an incident command post and commence mitigation actions. Facility staff will provide onsite damage control and recommend 'Urgent Protective Actions' within the UPZ and commence environmental monitoring.

Emergency Services will respond and establish forward commands. The Combat Agency commander will coordinate all response activities within the hot and warm zones by use of the AIIMS/ICCS structure. These strategies will focus on reducing the impact of the emergency and take appropriate actions to protect life.

Facility and combat agency activities are supported by establishment of site control and Emergency Operations Centre (EOC) under the direction of a site controller and LEOCON respectively. If required, the LEOC is supported at Regional and State levels by the establishment

of REOC and SEOC. Requests for Commonwealth or other support are coordinated through the SEOCON and if necessary through the State Crisis Centre.

Responding agencies are responded to either site control or EOC by the local activation arrangements and supporting and functional areas provide liaison officers as required. Information to provide situational awareness is provided from the incident site/s through site control to the Local, Regional and State EOC's.

Decision making for response activities outside the Buffer Zone requires accurate situational awareness, including environmental monitoring, atmospheric conditions, metrological forecasting and assessment of the risk to public health. Where possible, risk management and resource allocation is applied locally and augmented by higher level support.

Environmental monitoring will continue into the Extended Planning Distance (EPD) as directed by the Combat Agency or coordinated by the SEOCON. Such monitoring may be undertaken by ANSTO, ARPANSA, EPA or FRNSW and must be reported to the SEOCON for assessment of potential risks and may continue for lengthy periods beyond the initiating emergency.

Critical decisions regarding response and health strategies will be required as early as possible, with consideration of sheltering in place, relocation/evacuation and a range of health options including iodine thyroid blocking and medical assessment/treatment, both short and longer term. Any of these decisions is likely to have significant resource implications that will require support at Regional and/or State and/or Commonwealth levels.

The response strategies implemented will need to be supported by significant public messaging to provide public advice for actions as well as providing public confidence.

Transition into the recovery phase will require ongoing monitoring, continued public messaging in accordance with ongoing risk assessment and potentially site remediation in accordance with the Hazmat/CBRN Remediation process. Responsibility for coordination of recovery operations rests with the State Emergency Recovery Controller.

ANSTO also reports emergencies to the Commonwealth in accordance with regulatory requirements. Notification to IAEA occurs by ARPANSA, who will also assist ANSTO with monitoring and take part in decision making processes with the relevant agencies and EOC's.

8. HAZARD ASSESSMENT

8.1 ANSTO Hazard Assessment

For the purpose of this plan, ANSTO have prepared a detailed Hazard Assessment referred to as ANSTO Hazard Assessment and Radiation Protection Strategy. The arrangements in plan have been considered with this assessment as the basis for planning.

8.2 Context

The Sutherland Shire in Sydney's south has some 230,00 persons resident in the area. (Australian Bureau of Statistics, 2016). It is important to note that there are no permanent residential areas within the 1.6km radius buffer. Between 1.6 and 3km from the ANSTO site, the population is estimated to be 13,000 and at approximately 5km radius, the population is estimated at between 30,000-40,000.

8.3 Radiological Emergency Scenarios

ANSTO and ARPANSA have identified emergency scenarios that are relevant for the ANSTO site at Lucas Heights. These include:

1. Uncontrolled releases of radioactive contaminants from a nuclear research reactor, with dispersal of the contaminants over a region downwind from the reactor site;
2. The destruction of a high activity, sealed source and the consequent dispersion of contaminants into the immediate vicinity and thus contaminating the environment and products used by the population;
3. Uncontrolled releases from unsealed radioactive materials.

8.4 Characteristics of an emergency at ANSTO

The characteristics of recovery operations following any release of radioactive material from the ANSTO site at Lucas Heights are likely to be:

- Little or no likelihood of any physical damage beyond the ANSTO buffer zone
- Little or no likelihood of residual radioactive contamination beyond the ANSTO buffer zone
- Little or no likelihood of casualties beyond the ANSTO buffer zone, and
- An extremely high level of community concern about the risk of radioactive contamination.

9. ACTIVATION

9.1 Immediate Response

For the purpose of immediate response to an emergency by either ANSTO or an Emergency Service Organisation, this plan does not require activation. The arrangements set out in this plan are always active.

9.2 Implementation of Response Strategies

The longer term 'Response Strategies' such as evacuation, shelter in place, thyroid iodine blocking are to be implemented by direction of the SEOCN.

10. ROLES AND RESPONSIBILITIES

The Roles and Responsibilities listed below may be additional or variations to those listed in the NSW EMPLAN.

10.1 Agriculture and Animal Services - NSW Department of Primary Industries

Combat agency for biosecurity emergencies (animal and plant disease emergencies). Functional area support to combat agencies when agriculture and animal impacts occur.

NSW Department of Primary Industries may provide an Agriculture and Animal Services Functional Area Coordinator who may be responsible for providing expert advice to the Site Controller on their capability and capacity, support Police and emergency service operations.

Tasks relevant to this plan:

- Identify at risk animals and agriculture.

- Support warning and preparedness measures.
- Coordinate support to primary producers, animal holding establishments and the community in emergencies, including:
 - rescue, evacuation and emergency care for animals
 - assessment, humane destruction and disposal of affected animals.

10.2 **Australian Defence Force (ADF)**

ADF may provide specialist CBRN advice and resources to assist in the detection, decontamination, rendering safe and recovery of Hazmat emergencies. The ADF may assist in the analysis of CBRN material as well as specified people/areas affected by CBRN materials.

10.3 **Australian Nuclear Science and Technology Organisation (ANSTO)**

Australian Nuclear Science and Technology Organisation (ANSTO) operates Australia's only nuclear research reactor and associated radioisotope production and research facilities. As part of these operations and licensing requirements ANSTO maintains comprehensive radiation safety and emergency response capabilities.

Tasks relevant to this Plan:

- Provision of a hazard assessment and protection strategy.
- Monitoring In relation to a Nuclear or Radiological Emergency.
- Deploy radiation protection resources to effectively cover all aspects of radiation protection including contamination and field monitoring.
- Minimise radiation exposure to on-site personnel and off-site emergency responders as low as reasonably achievable (ALARA).
- Provide LO's to relevant EOCON's and provide representation to site control as required.
- Declare and classify the emergency.
- Inform off site authorities and external emergency services of the emergency and that on-site assistance may be required.
- Announce the emergency on-site and initiate on-site protective actions.
- Implement protective actions and response actions within the UPZ and EPD
- Implement first protective actions.
- Activate on-site EOC and establish forward command post
- If warranted, issue stable iodine to on-site personnel, onsite childcare and emergency responders.
- Evaluate the need for contamination control and if required request assistance from off-site.
- Recommend off-site protective actions based on the environmental predictive modelling data.
- Provide Public Information in accordance with the PIFAC arrangements through ANSTO Communications, including preparation of template communications.

10.4 **Australian Radiation Protection and Nuclear Safety Agency (ARPANSA)**

ARPANSA is designated by the International Atomic Energy Agency (IAEA) as Australia's National Competent Authority (NCA) on Nuclear and Radiological Emergencies, both domestic and abroad. ARPANSA maintains a range of specialist and deployable capabilities 24/7, and also hosts advanced technical reach-back capabilities. The CEO of ARPANSA has powers under the ARPANSA Act (1998) to give directions when necessary, in order to protect the health and safety of people, or to avoid damage to the environment.

Tasks relevant to this Plan:

- Provide field teams to conduct wide area gamma mapping, collect samples and perform in-situ technical measurements – this includes the deployment of automated gamma monitoring systems.
- Independent laboratory analysis to test environmental samples at ARPANSA and at other laboratories associated with the Australasian Radio-analytical Laboratory Network. These measurements would test the validity of those made by the operator.
- Perform rapid atmospheric modelling and conduct dose assessments in order to provide informed radiation protection advice for the public, first responders and government.
- Deployment of Regulatory Officers in order to monitor the response actions conducted by the operator and assess their effectiveness, keeping the CEO of ARPANSA abreast of the situation.

10.5 **Bureau of Meteorology (BoM)**

The Bureau of Meteorology provides information to various agencies to enable decision making environment monitoring to be undertaken. This support can be provided in various means including direct to agencies and from secondary means such as the BoM website.

10.6 **Comcare**

Comcare administers the Work Health and Safety Act 2011 (WHS Act) and Work Health and Safety Regulations 2011 (WHS Regulations) in the Commonwealth jurisdiction. All Federal Agencies are regulated by Comcare.

10.7 **Energy and Utility Services:**

The Energy and Utility Services Functional Area Coordinator (EUSFAC) of NSW Department of Planning and Industry, will provide specialist advice on energy and utilities arrangements, and provide support to police and emergency service operations where necessary.

10.8 **Environment Protection Authority**

EPA has a collective capability to advise, resource and implement activities and measures to prepare for and aid in preventing incidents/emergencies that may impact on human health and the environment (built and natural); and facilitate protection of the environment during emergency response and recovery.

Tasks relevant to this Plan include:

- Access and coordinating scientific and technical advice and support as requested by the Combat Agency Incident Controller or EOCON and within capabilities.
- Provide an Environmental Services Commander and additional staff as required to Combat Agency Forward Command or Site Control
- Provide ongoing advice to Combat Agency, EOCON and Site Controller on the nature and level of any radioactivity beyond:
 - a) the ANSTO facility boundary fence, and
 - b) the ANSTO facility Buffer Zone where the land is part of the State or is administered by the State.
- In conjunction with ANSTO and ARPANSA coordinate the facilitation of off-site monitoring including:
 - a) measuring radioiodine in air, and
 - b) predictive radiological modelling

- c) Providing data and analysis of monitoring to combat agency IC and NSW Health
- Advise FRNSW of any other non-radiological hazardous materials issues which are impacting on the State as a result of the emergency.
- Assist in (or facilitate as required) the clean-up and advisory of waste management of any contamination due to the incident.
- Coordinate environment monitoring within the Extended Planning Distance or request the SEOCN to coordinate monitoring and support if necessary.

10.9 **Environmental Services Functional Area Coordinator (EnvSFAC)**

The Environmental Services Functional Area is identified under EMPLAN as having the primary role in coordinating identified agencies responding to emergencies where the environment is at risk. Environment Protection Authority is the agency providing the EnvSFA. Specific responsibilities of the EnvSFAC are outlined in the Environmental Services Functional Area Supporting Plan and the HAZMAT/CBRN Sub Plan

10.10 **Fire and Rescue NSW (FRNSW)**

In relation to Fire Districts, prescribed in the Fire and Rescue NSW Act 1989 (as amended), FRNSW is the designated Combat Agency for taking all practicable measures for preventing and extinguishing fires and protecting and saving life and property in case of fire.

With respect to any land-based hazardous material incidents (and to any fires that may result from them) that occur anywhere in NSW except on State waters, FRNSW will take all practicable measures:

- For protecting and saving life and property endangered by hazardous material incidents
- For confining or ending such an incident
- For rendering the site safe.

FRNSW maintains procedures, equipment, training and resources to command, detect, decontaminate and render safe people, property and areas affected by hazardous materials.

Tasks relevant to this Plan include:

- As the combat agency for rendering the incident safe with respect to life, property and the environment, FRNSW will;
- Establish Incident Command
- Ensure scene security and implement the 3 Zone System – Hot, Warm and Cold
- Identify and assess potential harm
- Call in resources and place FRNSW units in Staging, including specialist Hazmat crews and resources
- Refer to and facilitate tasks as outlined in associated plans
- Monitor, assess and render safe operations
- Render safe through decontamination and/ or containment all equipment and other items leaving the Hot Zone
- Provide ongoing assistance and information sharing to the relevant EOCON and the Police Site Controller.
- Coordinate environment monitoring within the Extended Planning Distance or request the SEOCN to coordinate monitoring and support if necessary.

10.11 Local Emergency Operations Controller – Sutherland Shire

The Local Emergency Operations Controller (LEOCON) is to:

- On notification of an emergency affecting the ANSTO site, obtain information regarding the impact and consequences of the emergency from the Combat Agency, Site Control or other source and provide notification to the REOCON.
- Establish lines of communication to the REOCON and REOC if established.
- Direct the establishment of the Sutherland Shire LEOC if required.
- Appoint a Site Controller and support the Combat Agency and/or Site Control as required.
- Assess the level of threat to areas surrounding the site based on advice received at the Local level from ANSTO, ARPANSA, FRNSW, NSW Health, EPA and any other appropriate source and provide advice to REOCON as required.
- If not already declared, identify and declare the 'Danger Area' in relation to the emergency, or assess the current danger area and amend if necessary.
- Facilitate information and advice as required to the REOCON to determine the appropriate response strategy for affected areas to eliminate or reduce the risk of radiation exposure.
- Implement and/or communicate the 'response strategies' as directed by the SEOCON.
- Identify resource requirements at the Local level and allocate or coordinate as required.
- Facilitate the public information requirements as directed by the SEOCON and initiate public messaging if required.
- Maintain situational awareness of the emergency from the Local level, facilitate regular briefings at Local level and provide ongoing information to the REOCON.
- Prepare for likely response strategies such as evacuation by notifying relevant agencies. And consider supporting public messaging by physical means if required.

10.12 NSW Ambulance

NSW Ambulance is a supporting agency responsible for the emergency care and pre-hospital management of all casualties including the establishment of casualty triage, treatment and transport. The Ambulance component of the NSW HEALTHPLAN aims to provide a coordinated ambulance response to an incident, the establishment of a structured and coordinated command system and the initiation of prioritised patient management.

Tasks relevant to this Plan include:

- Assist with the provision of transport to those within the EZ area to be evacuated requiring assistance.
- Provide LO's to relevant EOCON's and provide representation to site control as required.
- Undertake other duties as directed by the State Health Services Functional Area Coordinator (HSFAC).

10.13 NSW Department of Education and Training

Tasks relevant to this Plan include:

- Ensure principals of all schools within a Danger or Emergency Area are aware of the evacuation/shelter in place and other mitigation measures in an emergency;
- The school Principal or Executive member in charge of the school will manage the evacuation/shelter in place of students (or other mitigation measures) when directed by relevant agencies or Department of Education Health and Safety Directorate
- The school will provide staff for supervision at evacuation centres to supervise students, as required.

10.14 **NSW Health**

NSW Health is a supporting agency and provides health services in accordance with the Health Services Supporting Plan (HEALTHPLAN). During a Hazmat emergency, NSW Health is responsible for providing definitive healthcare to casualties, protecting the physical and mental health of the public during response and recovery operations and providing health advice to other agencies and the public during all phases of the emergency management cycle.

NSW Health is responsible for coordinating and controlling the mobilisation of all health responses to accidents or incidents when this Plan is activated. This includes authorising, where necessary, the distribution of stable iodine tablets.

Tasks relevant to this Plan:

- Provide advice on the health risk associated with any levels of radioactivity and residual contamination.
- Provide iodine as required at evacuation centres and administer if directed to do so by the HSFAC or Chief Health Officer;
- Arrange for primary health care and psychosocial support team members at evacuation centres;
- Ensure facilities under NSW Health management are aware of their responsibilities under this plan and appropriately prepared; and
- Provide information and advice to medical practitioners regarding the recognition of radiation induced injuries and notification arrangements.

10.15 **NSW Police Force (NSWPF)**

Combat agency for Search and Rescue, public order as the result of an emergency and Terrorism. Protection of life and property as per the NSW Police Act and undertaking investigations and traffic management.

Tasks relevant to this Plan:

- Work with ESO's to take immediate action to preserve life.
- If required, a senior NSW Police officer may assume the role of 'Site Control' until the EOCON formally appoints a Site Controller.
- Responsibility for the coordination of the crime scenes
- Provide LO's to relevant EOCON's and provide representation to site control as required.
- Control area establishing perimeters to control both access and egress of pedestrian and vehicular traffic;
- Assist the relevant combat agency and/or EOCON to evacuate areas within the Evacuation Zone
- Delivering and arranging for delivery of street level or other public warnings
- Manage movement of pedestrian and vehicular traffic;
- Secure evacuated areas
- Control and manage assembly areas
- Manage the Disaster Victim Registration (DVR) process;
- Establish, publicise and operate the Public Information and Inquiry Centre

10.16 **NSW Police Media**

The NSW Police Media Unit provides media and public information support, advice and information sharing capability support activities of the NSW Police Force.

Tasks relevant to this Plan include

- If required, Police Media Liaison Officers can be deployed to an EOC if required.
- Consult with the Site Controller and other ESO's as required.
- Undertake Public Information activities as directed by the Public Information Functional Area Co-ordinator (PIFAC)

10.17 **NSW Rural Fire Service (NSW RFS)**

The NSW Rural Fire Service (NSW RFS) is the lead combat agency for bush fires in NSW.

Tasks relevant to this Plan:

- In a Hazardous Materials Emergency within Rural Fire District, the RFS may provide support and assistance to FRNSW as the designated Combat Agency for Hazardous Material Incidents.
- Provide assistance to other Emergency Service Organisations at incidents and emergencies under the control of those organisations.
- RFS may provide support by maintaining scene safety pending the arrival of FRNSW Hazmat resources, initiating firefighting operations and providing bulk water supplies for decontamination purposes.

10.18 **NSW State Emergency Service**

The NSW State Emergency Service (NSW SES) maintains an emergency assistance capability. During hazardous materials emergencies, the NSW SES may provide support to other emergency services.

Tasks relevant to this plan:

- Assist the relevant EOCON and ESO's as required, such as traffic control and public messaging.

10.19 **NSW Public Works and Engineering Services**

NSW Public Works is responsible for the provision and coordination of engineering support and resources including providing expert advice regarding the planning, design, delivery and maintenance of building and engineering projects, and infrastructure to manage the risk during emergency operations.

Tasks relevant to this Plan:

- Maintain an Engineering Emergency Management capability to support Combat Agencies, other Functional Areas and asset owners prevent, prepare for, respond to and recover from any event.
- Provide engineers in support of Combat Agencies in first response.

10.20 **Public Information Services Functional Area**

The PIFAC is responsible to SEOCAN for the operation of the Public Information Arrangements during an imminent or actual emergency operation not under the control of a combat agency and will co-ordinate the public information and subsequent activities of agencies involved to ensure the effectiveness of the information and where required, warnings provided.

However, the SEOCAN may approve requests from Combat Agencies, or direct the PIFAC to assist with, or coordinate Public Information or warnings, where the impact of the emergency goes beyond the responsibility of the responding agency.

Tasks relevant to this Plan:

- Assist in the development of warning systems;
- Coordinate the delivery of warnings and public information via a range of systems including traditional and social media platforms;
- Set up a Joint Media Information Centre (JMIC) where required; and
- Assist with the development and implementation of a Public Education program.

10.21 **Regional Emergency Operations Controller – Sydney Metropolitan EM Region**

The Regional Emergency Operations Controller (REOCON) is to:

- On notification of an emergency affecting the ANSTO site, obtain information regarding the impact and consequences of the emergency from the LEOCON, Site Control or other source and provide notification to the SEOCON.
- Establish lines of communication between the LEOCON/LEOC through the REOC if established to the SEOC/SEOCON.
- Direct the establishment of the REOC if required and support Local Operations as required.
- Assess the level of threat to areas surrounding the site based on advice received at the Regional level from ANSTO, ARPANSA, FRNSW, NSW Health, EPA and any other appropriate source and provide advice to SEOCON as required.
- If not already declared, identify and declare the 'Danger Area' in relation to the emergency, or assess the current danger area and amend if necessary.
- Obtain advice from the PIFAC in relation to the identification of public information issues, requirements and relevant messaging arrangements.
- Implement and/or communicate the 'response strategies' as directed by the SEOCON.
- Identify resource requirements at the Regional level and allocate or coordinate as required.
- Facilitate the public information requirements as directed by the SEOCON and initiate public messaging if required.
- Maintain situational awareness of the emergency from the Local level, facilitate regular briefings at Region processes through the REMO and provide ongoing information to the SEOCON.

10.22 **SafeWork NSW**

SafeWork NSW has responsibility for investigations and enforcement of workplace regulations under NSW jurisdiction. They may also provide resources to monitor and manage occupational risks, provide advice on regulation compliance, and support FRNSW, NSW Police Force, other emergency services and regulators during investigations of Hazmat emergencies.

Investigations & Emergency Response Directorate has responsibility for SafeWork NSW's coordination and response actions at the time of a declared emergency.

10.23 **State Emergency Operations Controller**

The State Emergency Operations Controller (SEOCON) is to:

- On notification of an emergency affecting the ANSTO site, obtain advice from other agencies regarding the impact and consequences of the emergency.
- Direct the establishment of the SEOC.
- Assess the level of threat to areas surrounding the site based on advice received from ANSTO, ARPANSA, FRNSW, NSW Health, EPA and any other appropriate source.
- If not already declared, identify and declare the 'Danger Area' in relation to the emergency, or assess the current danger area and amend if necessary.

- Determine and direct the most appropriate response strategy for affected areas to eliminate or reduce the risk of radiation exposure.
- Identify resource requirements and allocate or coordinate as required.
- Obtain advice from the PIFAC in relation to the identification of public information issues, requirements and relevant messaging arrangements.
- Direct the establishment of the PICC if required.
- Identify the requirements for higher level engagement with State and Federal Government and identify the appropriate method of engagement.
- Coordination and authorisation of DACC requests
- Maintain situational awareness of the emergency and facilitate regular briefings through the SEOC processes.

10.24 **Spatial Services, Department of Finance, Services and Innovation.**

Through its Emergency Information Coordination Unit (EICU), Spatial Services is the key provider of Spatial land administration services in NSW. In emergency situations, EICU provides relevant geospatial information to ensure a more efficient and effective response and recovery.

10.25 **State Emergency Management Committee**

Tasks relevant to this plan:

- Review and endorse this Plan, recommend and initiate reviews as required.
- Maintain awareness of changes in arrangements that will require review and/or updates of the plan.
- Ensure awareness of plan by SEMC members and relevant groups/agencies.
- Ensure regular testing of plans at the State Level by ensuring contemporary objectives are set at regular intervals.
- Facilitate strategic State level emergency management capability in the application of this Plan, through inter-agency co-ordination, co-operation and information sharing arrangements,

10.26 **Sutherland Shire Council**

Local Government may have responsibility for providing assistance with information related to the site and/or facility, resources and equipment, enhancing community resilience, assisting FRNSW with the render safe, providing support to Police and emergency service operations and recovery phase services.

Tasks relevant to this plan:

- Assist in establishing and maintaining support to the LEOC.
- Assist with the identification of vulnerable facilities and communities;
- Assist in the development and delivery of the Public Education program for the area;
- Assist in warning residents that an evacuation is required; and
- Assist in managing evacuation centres if requested to do so by the Disaster Recovery Human Services Functional Area Coordinator.

10.27 **Sutherland Shire LEMC**

Tasks relevant to this plan:

- Maintain liaison with ANSTO and awareness of changes in arrangements that will require review and/or updates of plans and notify REMC of potential changes.

- Maintain the Sutherland Shire CMG in relation to Nuclear and Radiological incidents and ensure that the EMPLAN arrangements (including evacuation arrangements and warning systems) are contemporary.
- In consultation with ANSTO, arrange for Public Education in relation to the hazard assessments and Plan.
- Ensure regular testing of the plan occurs (every 2 years) by ensuring contemporary objectives are set.

10.28 **Sydney Metropolitan REMC**

Tasks relevant to this plan:

- Maintain awareness of changes in arrangements that will require review and/or updates of plans.
- Ensure awareness of plan by REMC members and relevant groups/agencies.
- Ensure regular testing of plans at the Regional Level by ensuring contemporary objectives are set.

10.29 **Transport for NSW**

Transport for NSW (TfNSW) has two roles with regard to transport services during emergencies. It is the peak body for transport services in NSW and it is the lead agency of the Transport Services Functional Area.

In this subplan, TfNSW will coordinate the efforts of transport related agencies, manage all matters for the provision of transport services and support the NSW Police Force with traffic management outside of the incident inner perimeter.

Tasks relevant to this Plan:

- Reconfiguring transport systems and services to attempt to accommodate and circumvent disruptions;
- Providing advice with regard to alternate transport options;
- Publishing public information, within its own right as the peak transport body though its own agencies, in close consultation with the Public Information Services Functional Area Coordinator.
- Keeping the Police Commander/EOCON apprised of impacted transport infrastructure, alternate movement options and alternate transport termini arrangements, as applicable.
- TfNSW will support the EPA and/or FRNSW with waste transportation, and provide support to police and emergency service operations where necessary.
- Provide transport for evacuees and if required, emergency workers.

10.30 **Welfare Services**

Welfare Services are responsible for the coordination of evacuation centres and provision of immediate assistance under the SERM Act and Emergency Management Plans. During the response phase, Welfare Services may advise on or coordinate welfare arrangements, such as emergency accommodation and catering, material aid and personal support to disaster affected people.

Tasks relevant to this Plan:

- Establish and manage evacuation centres at the direction of the relevant EOCON.
- Provide welfare support as required consistent with the Welfare Services Functional Area Supporting Plan.

11. PREVENTION

11.1 Prevention and Mitigation

The facilities at ANSTO are designed to have minimal impact on the public and the environment. Safety is achieved through a series of barriers or measures is established to prevent any adverse radiological impact on people or the environment.

Measures include containment building design, shielding and filtration of effluents to reduce external radiation, site wide integrated safety alarm and fire detection system, training and review of procedures. The buffer zone is zoned non-residential (zone 12) and is predominantly native bush.

ANSTO also complies with the international security standards for the protection of nuclear facilities.

ANSTO's operations are licensed under the Australian Radiation Protection and Nuclear Safety Act and are inspected regularly by independent safety professionals to ensure that all national and international standards are being met.

12. PREPARATION

12.1 ANSTO Emergency Planning

ANSTO Lucas Heights has plans that detail internal responses for emergencies that occur on site. This plan identifies levels of 'Alert', 'Facility', 'Site' and 'General'. A 'General' emergency is declared when there is an off-site consequence, however, emergency services will be notified in each instance of 'Site' and 'General' emergencies.

ANSTO planning for a 'General' emergency that is nuclear or radiological are consistent with this plan.

It should be noted that ANSTO emergency planning also details response to emergencies that are not nuclear or radiological related. This Sub Plan is not applicable in these emergencies, instead relying on the normal emergency arrangements.

12.2 Radiation Protection Strategy

ANSTO have developed protection strategies for the site that outline protective actions and emergency response actions to be taken in the event of a nuclear or radiological emergency. The radiation protection strategy describes the outcomes required in response to a radiological emergency during all its phases, and how this will be achieved. The aim is to prevent severe deterministic effects, reasonably reduce the risk of stochastic effects, and to ensure the safety of emergency workers and helpers.

The details are described in the Lucas Heights Hazard Assessment and Radiation Protection Strategy:

1. Protective actions and other response actions
2. Reference level for emergency exposure situations

3. Generic criteria for protective actions and other response actions to reduce the risk of stochastic effects
4. Operational intervention levels
5. Emergency planning zones (PAZ, UPZ, EPD)
6. Actions to mitigate non-radiological consequences
7. Public communications

12.3 Resources and Capability

Emergency Management Committees at Local, Regional and State levels are to ensure that their relevant Emergency Services Organisations and functional areas are aware of this Plan and undertake the relevant liaison and familiarisation arrangements occur to respond to emergencies at ANSTO Lucas Heights.

12.4 Training

Agencies involved in activities covered by this plan are responsible for training of their members and staff to ensure an appropriate level of skill and knowledge is maintained to fulfil their agencies roles.

ANSTO facilitates training for emergency staff in nuclear and radiological emergencies, potential risk to emergency responders and how to mitigate risks.

For practical purposes, the LEMC should identify training needs for immediate responses.

12.5 Review and Exercise

The arrangements in this plan are to be exercised at least on a biennial basis or at the direction of the SEOCN unless an activation of this sub plan has occurred within two years from the previous activation or exercise.

Review and exercise should must ensure operational capability is maintained in relation to the immediate response and supporting arrangements.

For practical purposes, the LEMC should identify exercise objectives for immediate responses, REMC for Regional Level and recommendations to SEMC for State level.

12.6 Public Education & Information

Education to the public regarding actions that they may be able to take to prevent, reduce or deal with the effects on people's health will be led by NSW on an ongoing basis. This should be in consultation with NSW Health, NSW EPA, Sutherland Shire Council/LEMC and other relevant stakeholders.

Sutherland Shire LEMC must monitor changes in circumstances occurring at ANSTO Lucas Heights and consider the need for implementation or changes to public education messaging.

12.7 Stockpiling

Agencies are to ensure the sufficient availability of resources for use in the event of a radiological or nuclear emergency at ANSTO. Agencies are to remain aware of changes in the

hazard assessment through the LEMC. Advice is available from ANSTO and ARPANSA on the types of resources that may be required.

NSW Health is responsible for assessing the need for ongoing maintenance of iodine thyroid blocking agents and ensuring that it is appropriately stored and replaced when shelf life is exceeded. See further in 'Response Strategies'.

13. RESPONSE

This Part describes the sequence of actions required to mobilise the emergency management structure for a response due to an incident at ANSTO Lucas Heights with the potential for or an actual release of radioactive material with off- site consequences.

Operational decisions will be made by the Combat Agency and Emergency Operations Controllers in consultation with other relevant agencies.

13.1 Alert Levels and Emergency Response

As outlined in the ANSTO EMPLAN, there are predetermined levels to describe the nature of emergencies occurring on the site, being 'Alert', 'Facility', 'Site' and 'General'.

ESO's may be contacted for any of these levels, although incidents and emergencies may occur where no response from an ESO is actually required. This is because some incidents are managed entirely with ANSTO resources, without the need for ESO involvement. In this case, ANSTO will notify the LEOCON via the Sutherland Shire PAC Duty Officer and/or REMO to ensure that appropriate notifications occur within the EM environment. These types of incidents will generally be defined as "Alert" or "Facility".

ANSTO will immediately notify FRNSW, NSW Police and Sutherland Shire Council of any incident classified as a "Site" or "General" emergency.

13.2 Combat Agency

In accordance with the State Emergency Management Plan (EMPLAN), FRNSW is the designated combat agency for 'HAZMAT incidents' and NSW Police Force is the combat agency for Acts of Terrorism.

For specific terrorism emergencies, NSW Police Force have predetermined multi-agency arrangements that will be activated according to the NSW Counter-Terrorism Plan.

13.3 Escalation to SEOCON

Any event requiring the activation of this plan will require immediate notification to the SEOCON. It is expected that this would occur through normal notification procedures and if there are any delays, then the SEOCON can be contacted directly through the SEOC Duty Officer.

13.4 Facility Response Arrangements

The ANSTO site has the following resources at Lucas Heights:

1. Control Room (referred to as ANSTO EOC)
2. Facility Medical

3. Incident Command Post
4. Technical Support Centre
5. Laboratory
6. Evacuation/ Assembly point/s
7. Radiological Monitoring and Assessment Centre (may be within the ANSTO EOC)
8. Helicopter Landing Zone

13.5 Authority on Site

Each facility within the ANSTO site nominates a warden for that facility.

The Chief Warden is responsible for arranging access to affected areas as well as access to facilities equipment to either render first aid or to mitigate the effects of the emergency.

ANSTO has agreed to notify Police and FRNSW via a “000” call in the event of an incident where there is an uncontrolled release with the potential for or an actual release of radioactive material with potential off-site consequences.

14. RESPONSE TASKS

This part identifies the various tasks to be performed at the various locations and levels, including Facility/Site, Local, Regional and State level tasks. These are defined in the relevant sections below and provide an indication of the actual task requirements provided.

As indicated by the ARPANSA RPS G-3 Response Time Objectives (RTOs) are indicated for some specific tasks. This provides an indication of the maximum expected time frames for task completion, although for various reasons these may not be achieved.

14.1 Facility/Site Tasks and Responsibility/RTO

Facility/Site tasks relate to responses on site at ANSTO/LHSTC by ANSTO emergency personnel. This may also include local resources, such as FRNSW, NSWPF and NSW Ambulance.

The following actions and indicative RTO’s are the responsibility of ANSTO to commence and manage as Facility/Site level tasks:

- Declare and classify the emergency (<15 mins for facility emergency) – Responsibility of ANSTO Emergency Operations Manager in consultation with ANSTO Radiation Safety Officer
- Identify the Emergency Classification System – either General, Site or Facility.
In the case of a General or Site Emergency - Notify the ANSTO Crisis Management Team
- Notify Authorities (< 15 mins after classification) and obtain support (< 30 mins)
- Activate Incident Command Post (< 1 hour)
- Provide an immediate response and initiate mitigation actions (< 15 mins)
- Provide onsite damage control teams (< 1 hour)
- Recommend Urgent Protective Action (less than 30 mins) and implement Action (< 1 hour)
This may include prudently ‘sheltering in place’.
- Environmental monitoring near facility (<1 hour)
- Activate Radiological Monitoring and Assessment Centre (< 24 hours)
- Administer medical attention to affected persons until the arrival of medical services.

14.2 Local Level Response

Local tasks relate to responses off-site but in the immediate area.

The following actions are Operational Tasks and Responsibilities with some indicative RTO's. Identification of the relevant agencies are identified but may alter depending on circumstances:

- Establishment of Site Control (<1 hour)
- Establishment of Forward Command/s (<30 mins)
- Identify/activation of assembly centres (<1hour)
- Identify/activate Staging Area/s (<1hour)
- Medical treatment of those contaminated or significantly exposed (<1 hour)
- Activate EOC – (<2hours)
- Identify/activate Evacuation Centres (<3hours)

Off-site arrangements might also include:

- Protection of emergency workers (<30 mins)
- Declaration of a 'Danger Area' and other declaration under the SERM Act 1989 (<30 mins)
- Registration (DVR) of persons on site (<1 hour)
- Registration of affected persons for later medical follow up. (<2hours)

14.3 Regional Level Response

The following actions are initiated by the REOCON as Regional level tasks and responsibilities:

- Maintain liaison with LEOCON and LEOC and support
- Notify and update SEOCON
- Consider the need to establish a REOC
- Notify REMC members to occur via REMO.
- Engage relevant Regional Liaison Officers and update as required.

14.4 State Level Response

The following are State levels tasks and responsibilities:

SEOCON:

- Notification to SEMC members by SEOC.
- Liaison with REOCON regarding additional resourcing.
- Establish liaison with Health, FRNSW, EPA, ANSTO and ARPANSA.
- Obtain situational awareness regarding the emergency, actions taken and results of environmental monitoring within the UPZ (<12 hours)
- Determine the appropriate Response Strategy based on environmental monitoring.
- Assess the requirement for PICO arrangements to be initiated.
- Formulate joint media strategies and message through the PIFAC
- Briefing to Ministers/Government agencies as required.
- Identify the need for Commonwealth/ADF support and initiate DACC requests as required.

NSW Government:

- Liaison with Commonwealth agencies
- Assess the requirement of State Crisis Centre to be commenced

14.5 National Level

National level responses are dictated by the relevant agencies, which includes:

- Notification to IAEA (<2 hours) by ARPANSA
- Respond to IAEA notifications

14.6 Liaison Officers:

ANSTO, ARPANSA, Emergency Services and Functional Areas are to be prepared to provide LOs to the Forward Commands, site control and EOC's as required.

Where there are limited resources available, the relevant organisation should identify priorities for attendance/liaison with the relevant EOC/Site Control/Forward Commands in consultation with the SEOCON.

15. RESPONSE STRATEGIES

This part identifies the various options available to the SEOCON for determining the most appropriate response to a nuclear or radiological emergency occurring at ANSTO Lucas Heights. These strategies will be implemented based on the decision-making principles identified and may include combinations of strategies or variations in strategy based on actual or potential risks in different areas.

Risk to the community due to the release of radioactive material from the ANSTO site has been modelled in the ANSTO Hazard Assessment and Radiation Protection Strategy. This modelling indicates that generic intervention levels (GILs) would not be exceeded beyond the 1.6km buffer, even under worst case scenarios of poor meteorological conditions and no mitigation actions being taken (evacuation, sheltering or iodine prophylaxis).

15.1 Authority

Powers to evacuate and take other measures are contained in section 60L of the State Emergency and Rescue Management Act, 1989 (as amended).

These directions include the ability to declare a 'Danger Area' by a Directing Officer. It is expected that the Danger Area would be most likely aligned with the 'Urgent Protective Action Zone' (UPZ). Although this direction may occur at Local and Regional level, it should be reported and reviewed by the SEOCON to ensure that the appropriate level of advice accords with the identified 'Danger area'.

Decisions in relation to the appropriate 'Response Strategy (or Strategies)' will be determined by the SEOCON, acting on the advice of FRNSW (Combat agency), ANSTO, ARPANSA, NSW Health and the EPA.

It should be noted that the strategy/strategies may be delegated to the REOCON or LEOCON to implement. Further details to implement the strategy/strategies may be issued by the relevant EOCN.

15.2 Mitigation Actions

The ANSTO Emergency Plan provides detail on the mitigation that will take place on the site and/or relevant facility to:

- Prevent escalation of an emergency.
- Return the site/facility to a safe and stable state
- Reduce the consequences of radioactive releases or exposures.

The Plan outlines that ANSTO personnel will provide responding emergency services (NSWPF, F&RNSW and NSW Ambulance) with information on the mitigation actions and provide technical assistance as required. (Requirement 8 of GSG 2.1)

The details of the radiation protection strategy include:

- Protective actions and other response actions
- Reference level for emergency exposure situations
- Generic criteria for protective actions and other response actions to reduce the risk of stochastic effects
- Operational intervention levels
- Emergency planning zones (PAZ, UPZ, EPD)
- Actions to mitigate non-radiological consequences
- Public communications

15.3 Responder Exposure Controls

Any response strategy must include:

- An assessment of the tasks to be undertaken by responders
- Advice provided by ANSTO and ARPANSA on the potential risks in each area
- Recommendations regarding exposure times, radiation protection measures and PPE to be used.

EOCON's and Site Controllers must ensure that information on risks is provided to the relevant organisations within their respective areas of control.

Each organisation is responsible for monitoring its staff deployments and ensuring compliance with exposure times/measures and PPE requirements. This is particularly important when reduction in exposure time is a key preventative strategy.

Requirement 11 of IAEA GS-G-2.1 identifies that emergency workers and assistance must be registered, trained and fit for duties in a nuclear or radiological emergency and that ongoing monitoring of their fitness continue throughout an operation.

15.4 Shelter in Place

Whilst the radiological hazard assessment does not mandate the requirement for sheltering as a result of an airborne release, this urgent protective strategy will be prudently implemented with the UPZ. This will be done as a part of the urgent response phase.

Shelter in place is likely to be the most effective strategy in response to a nuclear or radiological emergency occurring at ANSTO Lucas Heights. As indicated in the Hazard Assessment, any off-site consequences are expected to be low.

Based on prevailing weather conditions and principles identified in decision making, affected areas and duration of measures should be assessed and recorded by the SEOCON, based on the advice provided by ANSTO, ARPANSA, NSW Health and EPA.

Messages to residents or person at risk in these areas must be notified of the requirements and specific advice and information provided. Such advice should include the need to:

- Remain in residences
- Close all external doors and windows
- Shut off air-conditioning
- Monitor public messaging
- Contact arrangements for inquiries

15.5 Evacuation

The need to evacuate will be assessed based on monitoring results using operational criteria and dose assessment using generic criteria as outlined in the radiation protection strategy. The SEOCON will determine the need for evacuation before nominating and prioritising which areas are to be evacuated.

If an evacuation is directed by the SEOCON, only those which could be affected are likely to require evacuation. Information from the Bureau of Meteorology regarding prevailing weather conditions particularly wind speed and direction will be a major consideration in determining areas that need to be evacuated.

Early advice is essential to the success of any evacuation, because it is intended that people from any at risk areas are evacuated before any radiation reaches them.

Any evacuations will be conducted in accordance with the Local Sutherland Shire EMPLAN and managed by the relevant EOCON.

FRNSW, EPA, ANSTO and ARPANSA will provide ongoing advice to assist SEOCON in making the decision to evacuate areas of the zone which may be at risk.

15.6 Iodine Thyroid Blocking

The need to conduct iodine thyroid blocking will be assessed based on monitoring results using operational criteria and dose assessment using generic criteria as outlined in Radiological Hazard Assessment and Protection Strategy. Iodine thyroid blocking may be ordered at lower doses if justified and optimised. Less disruptive protective actions such as sheltering could also be implemented for lower doses.

NSW Health is responsible for maintaining a stockpile of iodine prophylaxis and arranging for its distribution as necessary under the direction of the State Health Service Functional Area Coordinator (State HSFAC), Chief Health Officer, or delegate. The SEOCON authorises the decision to distribute the product.

For the thyroid, iodine thyroid blocking is an urgent protective action that is prescribed:

- (a) if exposure due to radioactive iodine is involved,
- (b) before or shortly after a release of radioactive iodine, and

(c) within only a short period before or after the intake of radioactive iodine. Less disruptive protective actions such as sheltering in place could be implemented for lower doses.

16. PUBLIC INFORMATION

Keeping the public updated and informed on how to respond to and recovery from an emergency involving the ANSTO facility at Lucas Heights, with the intention of protecting human life, health and the environment is critical to the success of the response and recovery phase.

The ANSTO Communications and Media team will manage the initial public information and media releases which relate to an emergency within the ANSTO facility and for ensuring that consistent messages are relayed to the responding emergency service organisations.

The ANSTO media team will coordinate regularly and work closely with the Public Information Functional Area Coordinator (PIFAC) to ensure consistency of information across all Emergency Services Organisations, Functional Areas and Participating Organisations.

The ANSTO media team will prepare template communications to enable immediate notification to the public of the emergency and safety advice relating to the emergency.

The PIFAC will assist the ANSTO media team with enhancement and delivery of public messaging. Where the emergency is likely to have greater impact outside the ANSTO facility on the general community, the PIFAC will assist the ANSTO media team in communicating with the public.

The SEOCON may request the PIFAC co-ordinate all public safety messaging in response to the emergency.

The Public Information and Inquiry Centre (PIIC) may be activated by the State Emergency Operations Controller (SEOCON) to assist with general public inquiries. If the PIIC is activated, the PIFAC will co-ordinate public information messaging to be provided to the PIIC.

Should the emergency be of such magnitude that the State Crisis Centre is activated, and the Crisis Policy Committee meet, then the Public Information Co-ordination Office (PICO) will be established to co-ordinate whole of government messaging.

16.1 Public Warnings and Health Information

There is the potential to provide specific information and advice to the public regarding required actions. This may include:

- Warnings in relation to danger areas and associated directions
- Traffic warnings
- Evacuation or sheltering in place
- Health advice – such as seeking medical assistance and directions regarding intake of food and drink.
- Advice regarding treatment and handling of animals and agriculture.

Decisions regarding such advice, warnings and directions will be made by the SEOCON, acting on the advice of ANSTO, APANSA, NSW Health, EPA and the PIFAC.

The SEOCON may utilise the REOCON or LEOCON to coordinate such advice, warnings and directions as required. The methods used to convey such messages will be determined by the SEOCON, or by delegation to the relevant EOCON, as advised by PIFAC.

Any messages to the public should be in 'plain language' that is easily understood by the public. Common messaging should be prepared and agreed in advance for specific circumstances to reduce time in compiling messages during emergencies.

17. RECOVERY

The arrangements for recovery operations in New South Wales are outlined in the NSW State EMPLAN and further described in the State Recovery Plan.

The New South Wales Recovery Plan outlines the strategic intent, responsibilities, authorities and the mechanisms for disaster recovery in New South Wales. The Recovery Plan, together with the guidelines, allow for the development and implementation of a planned recovery following a natural disaster or other emergency.

This process is overseen by the State Emergency Recovery Controller (SERCON) which is a statutory position appointed by the Minister for Police & Emergency Services and responsible for controlling the recovery from the emergency. (Source: SERM Act)

Following activation of this plan, the SEOCON will liaise with the SERCON to discuss recovery arrangements as detailed in the State Recovery Plan.

18. DEBRIEF

The Combat Agency is responsible for facilitating a debrief following any activation of this plan.

19. REVIEW

This plan is to be reviewed at least every 3 years or at the direction of the SEMC.

The SEOCON is responsible for the maintenance of the plan.

20. GLOSSARY

Act

Means the State Emergency and Rescue Management Act 1989 (as amended).

Alert

'Alert' is a level of emergency within the ANSTO site as defined by the ANSTO EMPLAN as 'an uncertain or significant decrease in the level of protection for the public or people on site'. It may prompt an ESO response or be managed on site. If there is no ESO response, then an incident notification will be made when appropriate.

Area Affected by Lucas Heights Emergency Sub Plan

Means the area affected by an emergency occurring on the ANSTO site at Lucas Heights.

Assembly Area

Assembly areas are designated locations used for the assembly of affected persons outside an emergency area prior to transport to a place of safety or evacuation centre. As such, these areas do not provide welfare assistance nor are they used for longer term sheltering or provision of meals. Assembly areas, if not pre-determined, are generally chosen by the Combat Agency in consultation with the NSW Police Force or other supporting agencies.

Buffer Zone

Means an area in which no permanent residential accommodation is allowed. This is approximately 1.6 km radius from the HIFAR reactor site.

Command

Means the direction of members and resources of an agency/organisation in the performance of the agency/organisation's roles and tasks (*Source: NSW EM PLAN*). Authority to command is established by legislation or by agreement with the agency/organisation. Command relates to agencies/organisations only and operates vertically within the agency/organisation.

Combat Agency

Means the agency identified in the State Emergency Management Plan (EMPLAN) as the agency primarily responsible for controlling the response to a particular emergency. (*Source: SERM Act*).

Consequence Management Guide/s (CMG/s)

Is a hazard specific document which provides agreed emergency management arrangements in a 'checklist' concept.

Contamination

The actual or potential exposure of person, animals, property or the environment to a hazardous material.

Control

Means the overall direction of the activities, agencies or individuals concerned. (*Source: SERM Act*).

Control operates horizontally across all agencies/organisations, functions and individuals. Situations are controlled.

Coordination

Means the bringing together of agencies and individuals to ensure effective emergency or rescue management, but does not include the control of agencies and individuals by direction. (Source: SERM Act).

Danger Area

Means the area specified by a Directing Officer as the area affected by an emergency.

For the purpose of this Plan, the Danger Area is expected to be the same area as the 'Urgent Protective Action' (UPZ) in which specific response strategies or 'Protective Actions' will be identified and applied to reduce the risk of radiation.

A Directing Officer may, if satisfied that there are reasonable grounds for protecting persons from injury or death threatened by an actual or imminent emergency, may direct persons to leave any particular premises and to move outside the danger area, to take any children or adults present in any particular premises who are in the person's care and to move them outside the danger area, or not to enter the danger area. (Source: Section 60L(1) SERM Act)

Decontamination

The process of assessing, removing, reducing and/or preventing the spread of contamination.

A Directing Officer may, if satisfied that there are reasonable grounds for doing so for the purpose of protecting persons from chemical, biological or radiological contamination, direct or authorise another police officer to direct, a person who may have been subjected to such contamination to do any or all of the following - to remain in a particular area, to remain quarantined from other persons, and/or to submit to decontamination procedures. (Source: Section 60L(1A) SERM Act).

Deterministic Effect

Means a radiation induced health effect for which generally a threshold level of dose exists above which the severity of the effect is greater for a higher dose. (Source: ARPANSA Guide for Radiation Protection in Emergency Exposure Situations RPS G-3). Simply put, an immediate effect of radiation.

Directing officer

Means:

- (a) the Minister, or
- (b) the State Emergency Operations Controller, or
- (c) a police officer of or above the rank of sergeant, or
- (d) a police officer of a class prescribed by the regulations for the purposes of this definition.

(Source: SERM Act).

Disaster Victim Registration (DVR)

Means a process where the names and contact details of persons, who are displaced from their usual home/locale, because of an emergency, are registered. Its function is to account for those persons' whereabouts, obtain their intended destination and, if consent is given, to inform others who may make inquiries as to the displaced persons location, destination or contact details. The NSW Police Force is the agency with the responsibility and authority to activate and manage DVR process.

See also Register, Find, Reunite is a system used to support DVR.

Effective Dose

Measure of the effect of radiation on the whole body. Used to determine evacuation and sheltering as protective actions.

Emergency

Means an emergency due to an actual or imminent occurrence (such as fire, flood, storm, earthquake, explosion, terrorist act, accident, epidemic or warlike action) which:

(a) endangers, or threatens to endanger, the safety or health of persons or animals in the State, or

(b) destroys or damages, or threatens to destroy or damage, property in the State, or

(c) causes a failure of, or a significant disruption to, an essential service or infrastructure, being an emergency which requires a significant and co-ordinated response.

(2) For the purposes of the definition of *emergency*, property in the State includes any part of the environment of the State. Accordingly, a reference in this Act to:

(a) threats or danger to property includes a reference to threats or danger to the environment, and

(b) the protection of property includes a reference to the protection of the environment.

(Source: SERM Act).

Emergency Action Levels (EALs)

A specific, predetermined criterion for observable conditions used to detect, recognise and determine the emergency class. (source: ARPANSA Guide for Radiation Protection in Emergency Exposure Situations RPS G-3.)

EALs are levels, specified in milliSieverts that will prompt protective actions in the UPZ.

Emergency Class

The emergencies within ANSTO will be declared by ANSTO based on the EALs or other observables using the following classification system - Alert, Facility, Site and General. Declaration of an emergency in any of these emergency classes should initiate a response that is considerably beyond normal operations. Depending on the nature of the declaration, some or all of this sub-plan will be activated.

For the purpose of this plan the class of emergency will determine the level of response. Facility or Site emergencies may not involve ESO's but they may be notified (see 'Notification of Incidents'). General emergencies have an 'off site' effect and will involve an ESO response.

Emergency Operations Centre (EOC)

Means a centre established at state, regional or local level as a centre of communication and as a centre for the coordination of operations and support during an emergency. *(Source: SERM Act).*

For the purpose of this plan, the Local Emergency Operations Centre (LEOC) For Sutherland Shire is designated as 126 Wilson Parade, Heathcote. The Regional Emergency Operations Centre (REOC) and State Emergency Operations Centre (SEOC) are located at the Sydney Police Centre. The activation of the EOC is determined by the situation, however, and will be located as directed by the relevant EOCON.

In addition to the LEOC, ANSTO maintain a EOC at Lucas Heights, referred to as the ANSTO EOC. For clarity in this sub plan the EOC location for each emergency is determined by the EOCON at the appropriate level.

Emergency Operations Controller (EOCON)

The member of the NSW Police Force who has been appointed as Local, Regional or State Emergency Operations Controller. (Source: SERM Act).

For the purpose of this Plan, the Local Emergency Operations Controller (LEOCON) is the Sutherland Shire LEOCON and the Regional Emergency Operations Controller (REOCON) is the Sydney Metropolitan Regional Emergency Operations Controller.

Emergency Services Organisation

Means the NSW Police Force, Fire and Rescue NSW, Rural Fire Service, NSW Ambulance, NSW, State Emergency Service. (Source: SERM Act).

Equivalent Dose

Measure of the effect of radiation to a particular organ. Used to determine iodine thyroid blocking and as a protective action.

Evacuation

Is a risk management strategy that may be used as a means of lessening the effects of an emergency or impact event on a community. It functions by removing people from the effects of an event, using distance as a protective measure. The following stages form the evacuation process: Decision to evacuate, Warning, Withdrawal, Shelter and Return.

For the purpose of this Sub Plan, arrangements for evacuation are recorded within the Sutherland Shire EMPLAN.

Evacuation Centre

An evacuation centre is defined as 'a centre which provides affected people with basic human needs including accommodation, food and water. It is a facility established outside the area at risk to meet the immediate needs of disaster affected people following evacuation from an emergency situation. (Source: NSW State EM Plan, Evacuation guidelines)

For the purpose of this plan, evacuation centres are recorded within the Sutherland Shire EMPLAN.

Extended Planning Distance (EPD)

The extended planning distance (EPD) is beyond the urgent protective action planning zone (UPZ). In this area monitoring and assessment of the radiological situation beyond the UPZ is conducted (on and off the site) in order to identify areas within a period of time that would allow the risk of stochastic effects in the areas to be effectively reduced by taking protective actions and other response actions within a day to a week or to a few weeks following a significant radioactive release.

For the purpose of this plan, a distance of 2.4 kms from the HIFAR reactor site is nominated, however, this may be greater dependant on circumstances and conditions. Monitoring within this site may be undertaken by ANSTO, ARPANSA, FRNSW or EPA and requires coordination by FRNSW as the Combat Agency or SEOCON. Analysis of results must take place to compare results across agencies to determine Urgent Protective Actions or response strategies to be implemented by direction of the SEOCON.

Facility

For the purpose of this plan, 'Facility' relates to the various prescribed radiation facilities within the ANSTO Site at Lucas Heights. Each Facility has its own Radiation Protection Plan and Emergency Plan.

Facility Emergency

Means a level of emergency within the site as defined by the ANSTO EMPLAN, which may prompt an ESO response or be managed on site. If there is no ESO response, then an incident notification will be made when appropriate.

Functional Area

A category of services involved in preparations for an emergency, including the following:

- Agriculture and Animal Services
- Telecommunications Services
- Energy & Utility Services
- Engineering Services
- Environmental Services
- Health Services
- Public Information Services
- Transport Services
- Welfare Services

(Source: SERM Act).

Functional Area Coordinator (FAC)

In this plan means the nominated coordinator of a Functional Area, tasked to coordinate the provision of Functional Area support and resources for emergency response and recovery operations, who, by agreement of Participating and Supporting Organisations within the Functional Area, has the authority to commit the resources of those utility. *(Source: EMPLAN).*

Fire and Rescue Commander

A senior Fire and Rescue NSW Officer who commands all FRNSW operations at the site.

General Emergency

Is a level of emergency as defined by the ANSTO EMPLAN, that warrants taken urgent protective actions off site, that will prompt ESO response to 000 by ANSTO.

Generic Intervention Levels

Measured in milliSiverts (mSv) for children at a certain point and references distance from the High Flux Australian Reactor site. It governs what are taken to be 'safe' levels that human can tolerate and therefore governs the emergency response and implementation of 'protection measures' such as evacuation, shelter in place, iodine etc for those not in a safe location.

Hazard Assessment

Hazard assessments identify potential consequences of an emergency and provide a basis for establishing arrangements for preparedness and response for a nuclear or radiological emergency (Source: ARPANSA Guide for Radiation Protection in Emergency Exposure Situations RPS G-3).

Iodine Prophylaxis

Means an iodine compound, in tablet or aqueous form, recommended for protection against exposure to radioactive iodine by reducing the uptake of iodine radioisotopes by the thyroid gland by way of ingestion or inhalation. It is also referred to as Stable Iodine or Inactive Iodine.

Joint Media Information Centre (JMIC) – To be confirmed by Kevin Daley

Means a centre established by a combat agency or emergency operations controller consisting of media officers from the main participating organisations of a multi-agency operation. (wording and definition to be confirmed by Media)

Liaison Officer

Means a person, nominated or appointed by an organisation or functional area, to represent that organisation or functional area at a control centre, emergency operations centre or coordination centre, a liaison officer maintains communications with and conveys directions/requests to their organisation or functional area, and provides advice on the status, capabilities, actions and requirements of their organisation or functional area.

Local Emergency Management Committee (LEMC)

Means the committee, constituted under the State Emergency and Rescue Management Act 1989 (as amended) for each local government area, and is responsible for the preparation of plans in relation to the prevention of, preparation for, response to and recovery from emergencies in the local government area, for which it is constituted. In the exercise of its functions, any such committee is responsible to the relevant Regional Emergency Management Committee (REMC) {Source: SERM Act}.

For the purpose of this plan, a reference to LEMC means the Sutherland LEMC.

Local Emergency Management Officer (LEMO)

Means a person appointed as principal executive officer to a LEMC.

For the purpose of this plan, the LEMO is appointed from Sutherland Shire Council.

Notification of Incidents

Will occur when an incident has occurred on site that is not an emergency. Notification in this case may be required to ensure that all agencies are aware of the incident. Depending on the nature of the incident, the REMO may advise other agencies to ensure that are appropriately briefed on the circumstances.

Off-Site

Is the area outside of the ANSTO outer perimeter security fence.

Off-Site Consequences

Are defined as emergencies that will affect an area outside the ANSTO outer perimeter fence. This includes physical and non-physical effects on the public and the environment and the management of those effects.

On-Site

Is the area contained within the ANSTO outer perimeter security fence.

Operational Intervention Level (OILs)

A set level of a measurable quantity that corresponds to a generic criterion.

Operational intervention levels (OILs) will be used to determine whether or not protective actions and other response actions should be taken, continue to be implemented, adjusted or ceased.

Police Commander

A senior NSW Police Officer who command all NSWPF operations at and surrounding the site.

Precautionary urgent protective action zones (PAZ)

At the ANSTO Lucas Heights site there is not a requirement to conduct any precautionary urgent protective actions on - or off-site. As such this is not considered further for emergency preparedness purposes.

Preparation

In relation to an emergency includes arrangements or plans to deal with an emergency or the effects of an emergency {Source: SERM Act}.

Prevention

In relation to an emergency includes the identification of hazards, the assessment of threats to life and property and the taking of measures to reduce potential loss to life and property {Source: SERM Act}.

Protective Measures

Measures designed to ensure that the radiation dose to individuals or to a collective population are mitigated. For example, urgent protective actions and other response actions such as evacuation, restrictions on the food chain and on water supply, prevention of inadvertent ingestion, restrictions on the consumption of food, milk and drinking water and on the use of commodities, decontamination of evacuees, control of access and traffic restrictions

Public Education

Means public awareness through increasing knowledge to enable people to understand the risk and the necessary actions to take to mitigate the effects of the risk. Public education is delivered prior to the event.

Public Information

In this plan means the information and advice provided to the to the public during an emergency to inform them of the response actions being taken and the specific actions that they should take, given the circumstances, to protect themselves.

Recovery

In relation to an emergency includes the process of returning an affected community to its proper level of functioning after an emergency. (Source: NSW EMPLAN).

Regional Emergency Management Committee (REMC)

Means the committee, constituted under the State Emergency and Rescue Management Act 1989 (as amended) for each emergency region, and is responsible for the preparation of plans in relation to the prevention of, preparation for, response to and recovery from emergencies in the region, for which it is constituted. In the exercise of its functions, any such committee is responsible to the State Emergency Management Committee (SEMC) {Source: SERM Act}.

Regional Emergency Management Officer (REMO)

Means a person appointed as principal executive officer to the REMC and the REOCON (Source: SERM Act).

For the purpose of this Plan, the Regional Emergency Management Officer is the Sydney Metropolitan REMO.

Regional Emergency Operations Controller (REOCON)

Means the Region Commander of Police appointed by the Commissioner of Police, as the Regional Emergency Operations Controller for the emergency management region. (*Source: SERM Act*).

For the purpose of this Plan, the Regional Emergency Operations Controller (REOCON) is the Sydney Metropolitan Emergency Operations Controller.

Register.Find.Reunite (RFR)

Is a system used to conduct Disaster Victim Registration that is maintained by the Australian Red Cross.

Representative Group

Means the people within the community that are considered the most at risk group with respect to the recommended generic intervention level of 30 milliSieverts (mSv) projected dose to the thyroid. They are: infants, children, young people up to the age of 18, and pregnant women (protection of the foetus)

Responder

In this plan, means persons officially engaged in operational efforts. This includes personnel from ANSTO, emergency service organisations, functional area agencies and other participating or supporting agencies.

Response

In relation to an emergency includes the process of combating an emergency and of providing immediate relief for persons affected by an emergency. (*Source: SERM Act*).

Response Time Objectives

Response time objectives (RTOs) are suggested time objectives for selected critical response functions or tasks for facilities in emergency preparedness categories I, II and III. (*Source: ARPANSA reference RPS G3 Part 3*)

RTO's provide an indicative time frame for completion of the functions/tasks, although for operational reasons they may not be achieved.

Self-evacuation

This is a spontaneous type of evacuation involving the self-initiated movement of people as individuals, families or community groups. This may include circumstances where residents are advised to leave early ahead of dangerous conditions. (*Source: NSW State EM Plan, Evacuation guidelines*)

Sievert

The SI unit for effective dose is joule per kilogram (J/kg), termed the Sievert (Sv). An explanation of the quantity is given in Annex B of *International Commission on Radiological Protection Publication 103*.

For the purpose of this plan, generic intervention levels are defined in milliSieverts (mSv). Operational Intervention Levels are defined in microSieverts (μ Sv).

Site

For the purpose of this plan relates to the whole of ANSTO Lucas Heights Campus. It is also referred to as Lucas Heights Science and Technology Centre (LHSTC).

Site Control

The location from which the Site Controller, agency commanders and functional areas coordinate the emergency. It usually includes the relevant Emergency Service Commanders and Functional Area Coordinators and other advisers as required. *(Source: NSW EM Plan)*

Site Controller

A police officer appointed by and subject to the direction of an emergency operations controller to be responsible for determining the site, establishing site control and controlling on the ground response to an emergency. Until the Emergency Operations Controller appoints a Site Controller, the Senior Police Officer will assume control. *(Source: NSW EM Plan)*

Site Emergency

'Site' denotes a level of emergency for the ANSTO, which may be managed on site, but will prompt an ESO response via 000.

Site Emergency Plan (ANSTO)

Means the Plan devised by ANSTO for actions taken by ANSTO for 'on site' responses to emergencies. It relates to the overall site and facilities within the site.

Staging Area

Means a prearranged, strategically placed area where support response personnel, vehicles and other equipment can be held in readiness for use during an emergency.

Standard Emergency Warning Signal (SEWS)

Means a distinctive series of audible tones used, in emergencies, before a broadcast media announcement to alert a listener that an important announcement or information is about to be broadcast.

State Emergency Management Committee (SEMC)

Means the committee constituted under the State Emergency and Rescue Management Act, 1989 (as amended), as the principal committee established under this Act for the purposes of emergency management throughout the State, and, in particular, is responsible for emergency planning at a State level {Source: SERM Act}.

State Emergency Operations Controller (SEOCN)

Means the person designated by the Governor, on the recommendation of the Minister as the person for the time being holding or acting in that position.

The SEOCN is responsible for controlling, in accordance with the SERM Act, the response to an emergency that affects more than one region or for which the SEOCN assumes responsibility or where there is no designated combat agency.

State Emergency Recovery Controller (SERCON)

Means the Secretary of the Department of Justice or a senior executive of the Department of Justice designated by the Secretary.

The SERCON is responsible for controlling, in accordance with the SERM Act, the recovery from an emergency that affects more than one region or for which the SERCON assumes responsibility

Stochastic Effect

A radiation induced health effect, the probability of occurrence of which is greater for a higher radiation dose and the severity of which (if it occurs) is independent of dose. Stochastic effects may be somatic effects or hereditary effects, and generally occur without a threshold level of dose. Examples include solid cancers and leukaemia. (Source: ARPANSA Guide for Radiation Protection in Emergency Exposure Situations RPS G-3). Simply put, a statistical increase in the risk of cancer.

Sub Plan

A sub plan is an action plan required for a specific hazard, or event. Sub plans may be prepared when the management arrangements necessary to deal with the effects of the hazard, or the requirements due to an event differ from the general coordination arrangements. A sub plan may be required where the planning is more specialised or detailed than can be provided for in EMPLAN (Source: NSW EMPLAN).

Urgent Protective Action (Planning) Zone (UPZ)

For Emergency Preparedness Category II facilities there is a requirement to define an urgent protective action planning zone (UPZ). A UPZ is the area where preparations are made to promptly shelter in place, to perform environmental monitoring and to implement urgent protective actions on the basis of the results of monitoring within a few hours following a release.

Within this UPZ, arrangements have been made to initiate urgent protective actions and other response actions, if possible before any significant release of radioactive material occurs, on the basis of conditions at the facility (i.e. conditions leading to the declaration of a general emergency and after a release occurs, on the basis of monitoring and assessment of the radiological situation on and off the site, in order to reduce the risk of stochastic effects¹.

¹ Taking actions within the urgent protective action planning zone in order to reduce the risk of stochastic effects would not mean that no severe deterministic effects could possibly be observed within the urgent protective action planning zone.

21. ABBREVIATIONS

ADF	Australian Defence Force
AIIMS	Australasian Inter-Service Incident Management System
ANSTO	Australian Nuclear Science & Technology Organisation
ARPANSA	Australian Radiation Protection and Nuclear Safety Agency
BoM	Bureau of Meteorology
CBRN	Chemical Biological Radiological Nuclear
CMG/s	Consequence Management Guide/s
EAL	Emergency Action Levels
EICU	Emergency Information Coordination Unit
EMPLAN	NSW State Emergency Management Plan
EOC	Emergency Operations Centre
EOCON	Emergency Operations Controller
EPA	Environmental Protection Agency
ESO	Emergency Service Organisation
EZ	Evacuation Zone
FAC	Functional Area Coordinator
FRNSW	Fire and Rescue NSW
HSFAC	Health Services Functional Area Coordinator
IAEA	International Atomic Energy Agency
ICCS	Incident Command and Control System
LEMC	Local Emergency Management Committee
LEOCON	Local Emergency Management Controller
LHESP	Lucas Heights Emergency Sub Plan
LHSTC	Lucas Heights Science and Technology Centre
LO	Liaison Officer

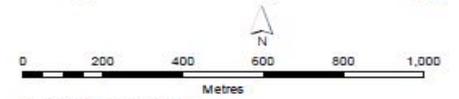
NSW RFS	Rural Fire Service
OIL/s	Operational Intervention Level/s
PICO	Public Information Coordination Officer
PIFAC	Public Information Functional Area Coordinator
PGI	Primary Group of Interest
REMO	Regional Emergency Management Officer
REOCON	Regional Emergency Operations Controller
RTO	Response Time Objective
SEMC	State Emergency Management Committee
SEOC	State Emergency Operations Centre
SEOCON	State Emergency Operations Controller
SERCON	State Emergency Recovery Controller
SERM Act	State Emergency and Rescue Management Act 1989
NSW SES	NSW State Emergency Service
UPZ	Urgent Protective Action (Planning) Zone

22. ANNEXURES

<i>Annex Number</i>	<i>Description</i>
<i>Annex 1</i>	Pre-determined initial radiological monitoring locations within the EPD
<i>Annex 2</i>	Lucas heights sub plan command and control diagram
<i>Annex 3</i>	Radiological monitoring

Lucas Heights Sub-Plan

Lucas Heights Sub-Plan
Urgent Protective Action Zones (UPZ) for
Sheltering and Iodine Thyroid Blocking (ITB)



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Source: NSW Spatial Services, Geospatial Information Corporation (GIC)

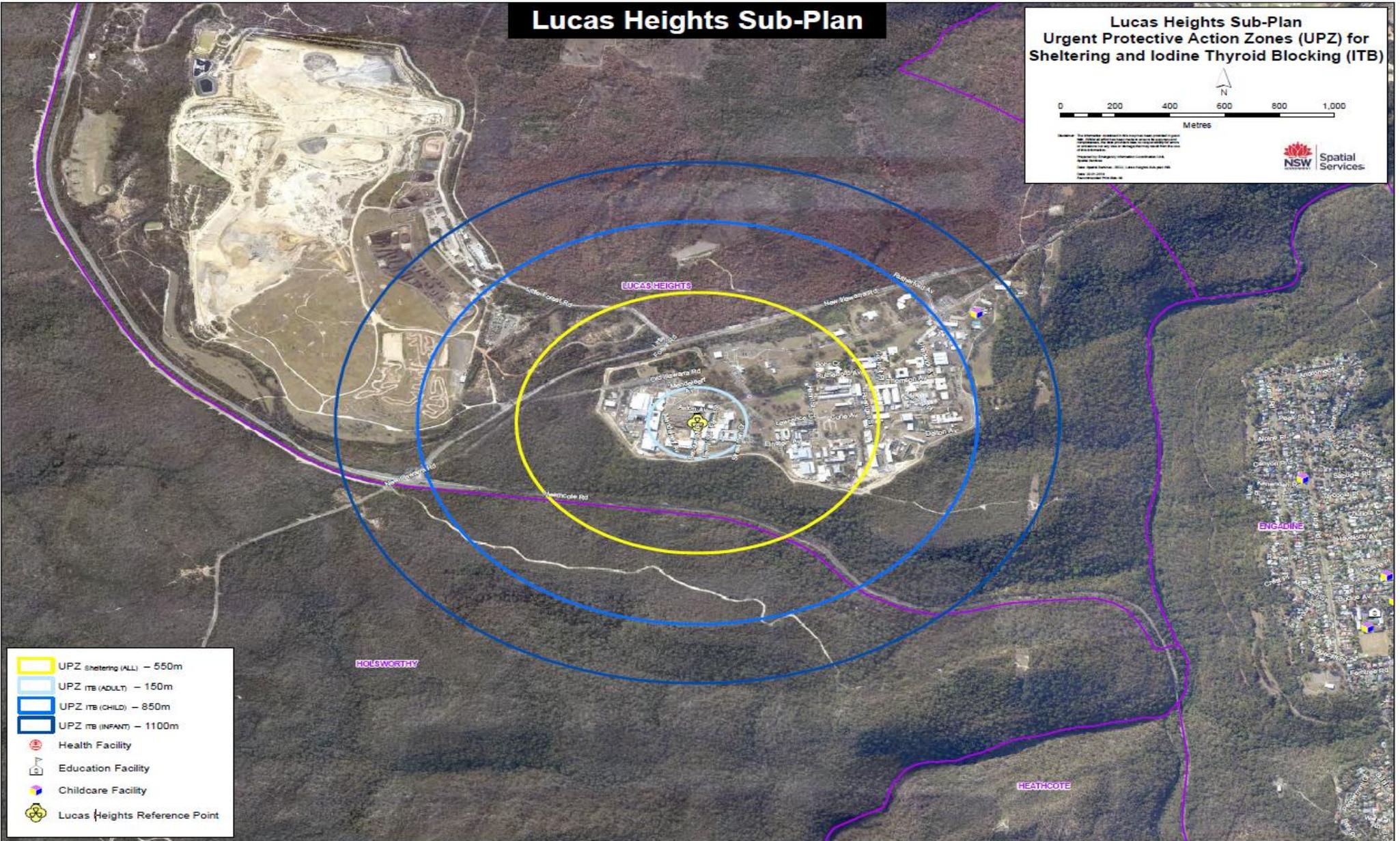
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Map Date: 2019

Map Author: NSW Spatial Services

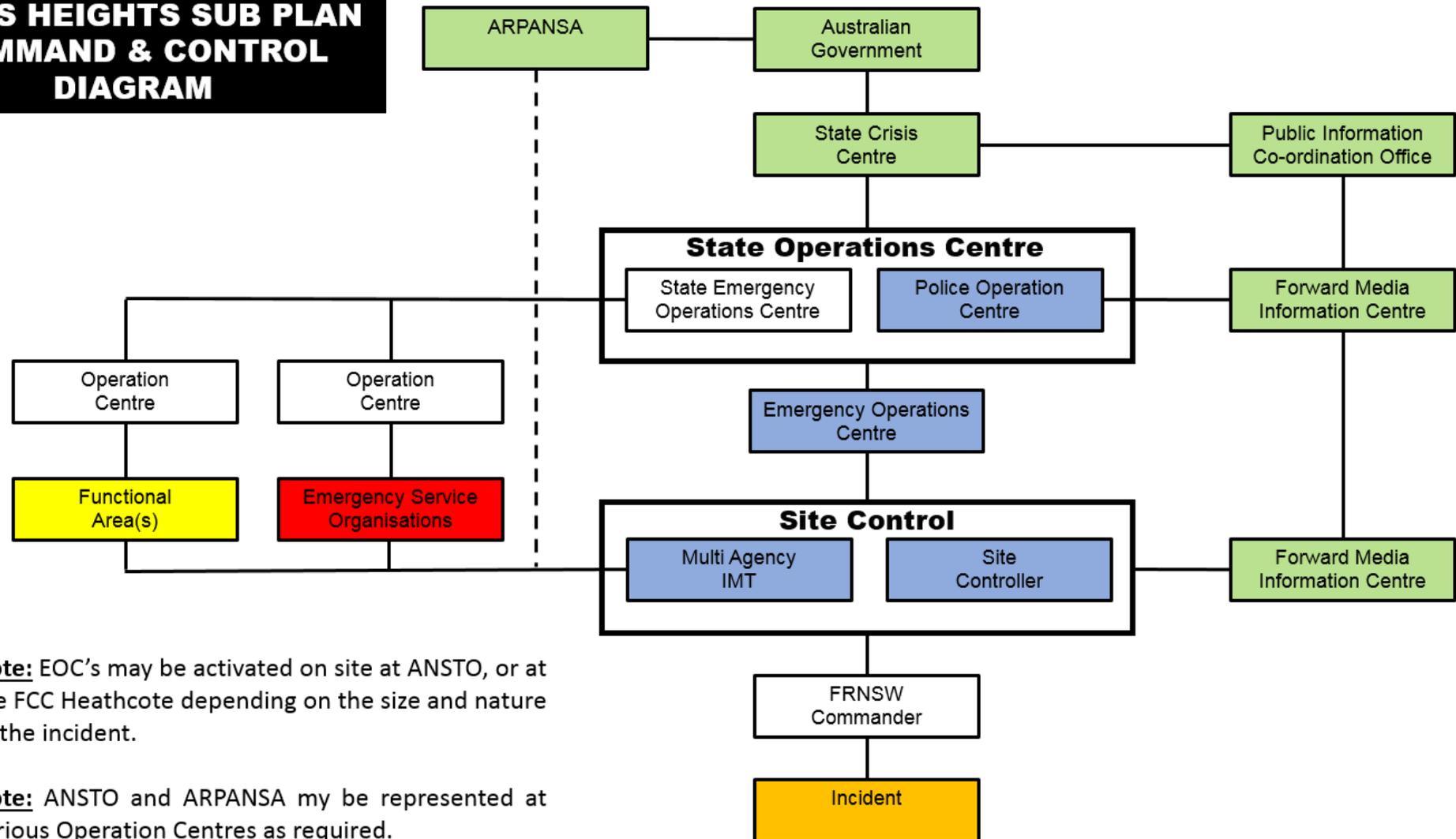
Map Title: Lucas Heights Sub-Plan

Map Version: 1.0



- UPZ Sheltering (ALL) - 550m
- UPZ ITB (ADULT) - 150m
- UPZ ITB (CHILD) - 850m
- UPZ ITB (INFANT) - 1100m
- Health Facility
- Education Facility
- Childcare Facility
- Lucas Heights Reference Point

**LUCAS HEIGHTS SUB PLAN
COMMAND & CONTROL
DIAGRAM**



Note: EOC's may be activated on site at ANSTO, or at the FCC Heathcote depending on the size and nature of the incident.

Note: ANSTO and ARPANSA may be represented at various Operation Centres as required.

RADIOLOGICAL MONITORING

OVERVIEW

The monitoring, analysis and assessment of the radiological situation is required to inform intelligence and decisions related to protective measures for:

- The health and wellbeing of the surrounding community,
- Environmental Impacts,
- Decontamination strategies,
- Informing risk controls, and
- Recovery considerations

OPERATIONAL CONCEPT

Monitoring is commenced by ANSTO immediately after the occurrence of the incident, as defined in the facility emergency plan. This will assist with identifying the levels of radiation emissions and determine the geographic area of release. Coordination of additional monitoring within the Extended Planning Distance (EPD) and/or Precautionary Action Zone (PAZ) will be undertaken if determined necessary.

Additional monitoring outside of the Urgent Protective Action Zone (UPZ) not undertaken by ANSTO or ARPANSA may be coordinated by the EnvSFAC at the request of the Combat Agency IC or SEOCON.

The Environmental Services Functional Area Coordinator will ensure a State level coordinated approach to the engagement of monitoring resources and equipment, analysis and timely information sharing across Emergency Management stakeholders. This may also include actions to engage the services of commonwealth resources.

MONITORING DEVICES AND TYPES

1. Fixed area monitoring devices – Located in specified areas around the ANSTO facility to monitor air sampling and able to transmit electronic dose exceedance alarm notifications.
2. Portable area monitoring devices – Mobile equipment utilised in the UPZ and deployed to pre-identified or operationally identified areas within the UPZ and EPD.
3. Manual Monitoring – Samples taken from ground and water, including storm water drains, local creeks and ground water.
4. Personal/Static Monitoring Devices – Worn by a person for measuring exposure, over a specified period, the radiation dose received by a person who is occupationally exposed.

OPERATIONAL TRIGGERS

Facility or site emergency – when this type of incident is identified monitoring will be led by ANSTO and supported by the Combat Agency and EPA. Independent monitoring is determined by the Combat Agency IC or EnvSFAC.

General emergency – when this type of emergency is identified the EPA will coordinate the deployment of personnel and portable monitoring devices to the predetermined down-wind and other locations as advised by ANSTO, the Combat Agency IC, or as determined appropriate by any other authority.

OPERATIONAL ACTIVITIES

1. Monitoring within the Urgent Protective action planning Zone (UPZ) will be undertaken by ANSTO as per the facility Emergency Management Plan utilising fixed and portable monitors. ARPANSA will oversight UPZ monitoring activities.
2. Initial monitoring out into the immediate Extended Planning Distance (EPD) is conducted by ANSTO during initial response to assess the geographic distance and penetration of possible radiological release.
3. Additional monitoring outside the UPZ will be coordinated through the EPA utilising additional resources from supporting and participating organisations.
4. Monitoring resources to operate outside the UPZ may be sourced from ANSTO, ARPANSA, FRNSW or any other identified NSW or Commonwealth agency or Organisation should the need exist.
5. Where resources are not available, have significant or protracted lead-time or do not meet the necessary monitoring requirements for the situation the EnvSFAC will liaise with the SEOCON and may consider making a DACC request for support.
6. Weather will be monitored from Lucas heights and surrounding weather stations managed by Bureau of Meteorology (BoM) and ANSTO. Area specific weather forecasting may be requested from the BoM through the SEOC or directly.
7. ANSTO will conduct plume modelling and provide intelligence to the Combat Agency Incident Controller and EPA Commander. Plume modelling will be made available to the EnvSFAC and SEOCON.

PREDETERMINED MONITORING LOCATIONS

Also refer to Annex map

Monitoring Point	Location	Coordinates
1	LUCAS HEIGHTS, MTB Park, 1839 Little Forest Rd	-34.0376, 150.9769
2	LUCAS HEIGHTS, Menai sand & Soil, New Illawarra Rd	-34.0413, 150.9959
3	BARDEN RIDGE, Barden Ridge Oval, Old Illawarra Rd,	-34.0389, 151.0048
4	ENGADINE, Sierra Rd Reserve, 23 Sierra Rd	-34.0511, 150.9988
5	ENGADINE, Ferntree Reserve, Cnr Ferntree & Ridge Rd	-34.0617, 151.0013
6	HEATHCOTE, entry to Pipeline Trail, Forum Dr	-34.0750, 151.0020
7	HEATHCOTE RD, Gate 9A	-34.0384, 150.9598

CONTINGENCY CONSIDERATIONS

In some cases, the incident or emergency occurring at ANSTO may negate the ability for ANSTO to activate all, or parts of, the monitoring and sampling component of their facility emergency plan (ie ongoing active incident where taking samples poses immediate unreasonable risk to life).

In this event the EnvSFAC, will ensure that the monitoring and sampling process as described in this Annex are still undertaken in the area surrounding the UPZ, or any established exclusion zone when requested or required to do so.

REPORTING COMMUNICATIONS

ANSTO internal reporting processes, including to ARPANSA, are the initial stage for monitoring/data analysis results. In addition to the mandatory reporting requirements stipulated under ARPANSA and the facility emergency plan, further reporting should be provided in 30-minute intervals after arrival to the Combat Agency IC and Site Control (including EPA Commander and NSW Health LO), unless otherwise advised.

EPA Commander will also ensure that monitoring/data results undertaken by EPA are available to the Health LO at Site Control to inform immediate analysis of risk for the general community. Monitoring/data analysis results are required to be reported unabridged with expediency and at regular intervals.

NSW Health will provide public health advice and exposure control advice based on analysis of the data provided.

The EPA Commander will ensure that the EPA Incident Coordinator is informed in conjunction with EnvSFAC of all intelligence and decisions made by the relevant authority in relation to public safety decisions.

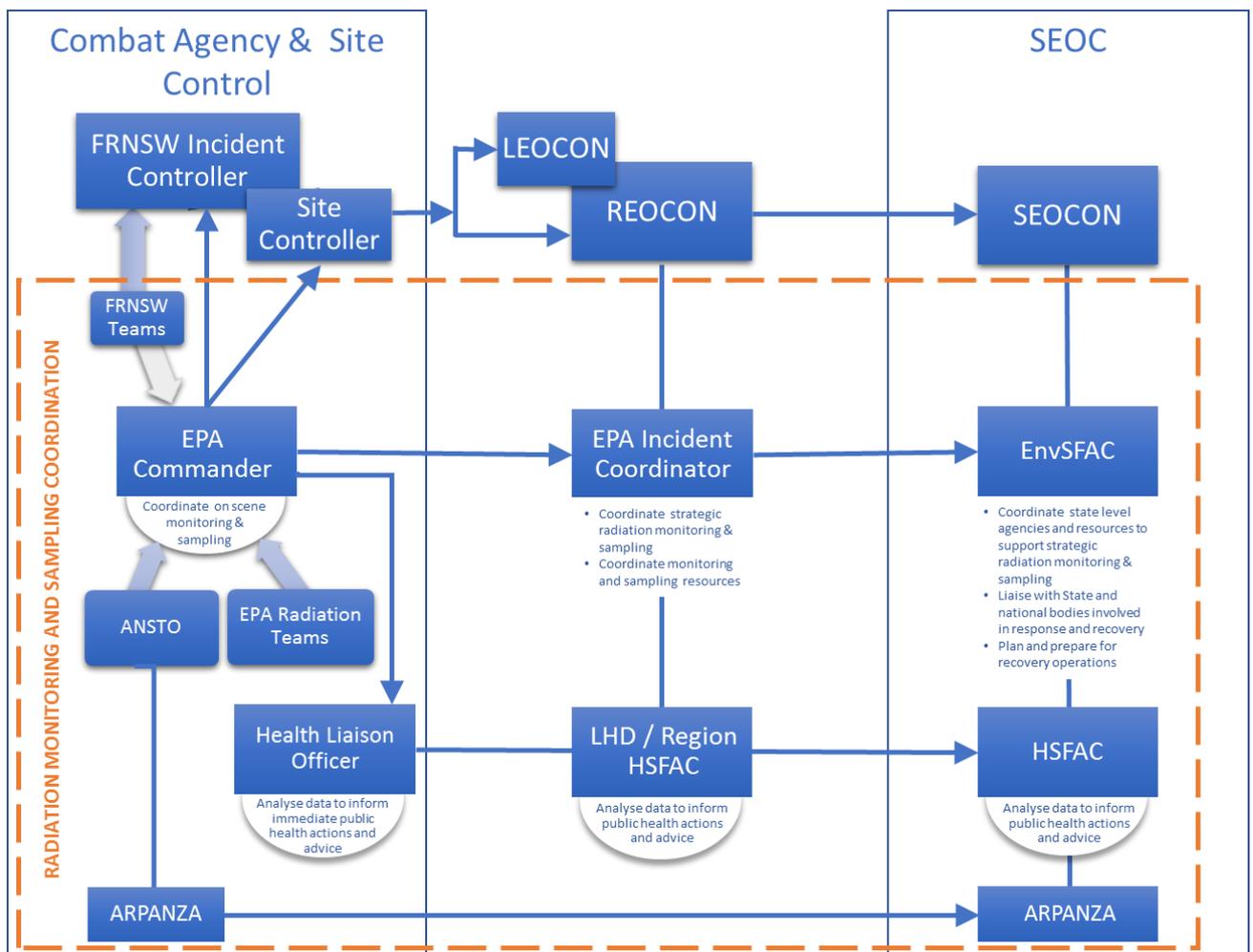


Figure 1: Radiological emergency - monitoring, sampling and reporting structure

PERSONAL MONITORING

Personal or static monitoring devices are recommended to be supplied and available by responding agencies for their personnel. Each agency using such devices are to ensure that they have adequate protocols in place to train personal, assess dosage exposure and make informed response decisions based on exposure risk.